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as erroneous; and this leads the author to inquire, what confidence is due to the Greenwich observations of the present day. His principal reliance on their accuracy he founds on the coincidence of the results obtained by the two independent methods of direct vision and reflection, and he shows in what manner this coincidence of the two results is a proof of the accuracy of either. The general tendency of all instruments, he observes, is to undergo equal and opposite flexures, at equal elevations on either side of the zenith; whence it cannot be inferred, with regard to instruments that turn in azimuth, that flexure does not take place, from stars of different altitudes giving the same error of collimation. But on the contrary, if, by the method of reflection, stars of different altitudes give the same horizontal point, the strongest proof will be afforded of the non-flexure of the instrument. These equal and opposite flexures on opposite sides of the zenith, will, in our latitudes, affect stars near the equator by errors in polar distance about double of the errors committed in stars near the zenith. These views are illustrated by a comparison of the Greenwich Catalogue with those of Dr. Brinkley and Mr. Bessel; and since the two latter, in conformity with the law of flexure, differ from one another by $5''$ near the equator, and by only half that quantity near the zenith, it is inferred that the instruments used by those two astronomers, one or both of them, are liable to flexure.

Since those stars must be most correctly determined by the method of reflection, whose altitude is the least, on account of the shortness of the arc to be measured, the author considers himself intitled to decide what is the share of error which, in stars near the equator, belong to each of these catalogues. In stars so situated, Dr. Brinkley's polar distances exceed the author's by about $2''$, and Mr. Bessel's fall short of them by about $3''$; and since the Greenwich Catalogue everywhere divides the difference of the two catalogues in nearly the same ratio, it is considered probable that the errors of each throughout are nearly in the same proportion.

On the Parallax of α Lyrae. By John Pond, Esq. Astronomer Royal, F.R.S. Read November 14, 1822. [*Phil. Trans.* 1823, p. 53.]

The author, not satisfied with his former attempts to discover the parallax of α Lyrae with the mural circle, has resumed his examinations of this star with the same instrument, being prevented from employing the method of a fixed telescope, for want of an opposite star sufficiently bright to be observed throughout the year. The Dublin observations having indicated that the parallax of γ Draconis is insensible, and that of α Lyrae about $2''$, he investigates first the difference of parallax between these stars; secondly, the absolute parallax of α Lyrae.

The change in the angular distance of the two stars at opposite seasons, he finds not to exceed one tenth of a second; which perfect coincidence he attributes in great measure to the mildness of the winter of 1821-1822, enabling him to equalize the temperatures of

the outer and inner thermometer throughout the whole course of observation. It is shown that temperature cannot have vitiated these results by its effect on the instrument, since they are the same whether we employ the readings of two, or of six microscopes.

The absolute parallax of α Lyrae is investigated by the method of reflection, which the author had successfully introduced into other astronomical researches. Although the period of observation embraces only half the period of the double parallax, yet that apparent disadvantage is more than compensated, in the author's opinion, by an uniformity of the temperature obtained, such as can never be expected between the extreme seasons. Here, again, from the season chosen, from the pains taken to equalize the temperature, and from the concordance of the results obtained with two and six microscopes, the author believes that no errors of sensible amount have been introduced by change of temperature. These observations indicate that the absolute parallax of α Lyrae does not exceed a small fraction of a second.

The argument that has been advanced by Dr. Brinkley in favour of parallax, and on which the greatest reliance has been placed, is next adverted to; namely, that founded on the disengagement of the solar nutation after allowing for parallax, from the observations made with the Dublin instrument. This reasoning is considered strictly logical, as proving the disengagement of two equations, having each a regular period; but by no means so, as establishing that the larger equation results from parallax; since those stars in which the Dublin instrument discovers parallax, are at some distance from the zenith; and the more so as their parallax appears to be greater; and moreover, since those in which the greatest parallax is found, are stars whose maximum and minimum of parallax fall in the extreme seasons; the author thinks it probable that the discordances observed are owing to changes of temperature, which either alter the form of the instrument, or modify the refractions of the ray introduced within the observatory; since, on this supposition, we shall account for the want of parallax in zenith stars, and in those whose greatest and least parallax would happen at the mean seasons, and also for the regularity of the period that the discordances have been found to observe.

Observations on the Heights of Places in the Trigonometrical Survey of Great Britain, and upon the Latitude of Arbury Hill. By B. Bevan, Esq. Communicated by Sir H. Davy, Bart. P.R.S. Read May 23, 1822. [Phil. Trans. 1823, p. 73.]

The result of the trigonometrical survey, relative to the different sections of the meridian in this country, having disappointed public expectation, Mr. Bevan lately examined with some care the calculations affected by the observations made at Arbury Hill, with the hope of reconciling the anomaly in that part of the meridian. The